



#9

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Schwartz

Serial No.: 09/815,978

Filed: March 22, 2001

For: HYDRAZINE-BASED AND CARBONYL-
BASED BIFUNCTIONAL CROSSLINKING
REAGENTS

Art Unit: Unassigned

Examiner: Unassigned

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Washington, D.C. 20231, on this date.

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Kelly FischerPETITION PURSUANT TO 37 C.F.R. §1.182 - QUESTIONS NOT SPECIFICALLY
PROVIDED FOR: REQUEST FOR ENTRY OF REPLACEMENT DRAWINGS

ATTN: BOX PGPUB DRAWINGS

Commissioner for Patents

Washington, D.C. 20231

Dear Sir:

This is a Petition pursuant to 37 C.F.R. §1.182 to request the entry of replacement drawings in the publication of the above-identified application. The replacement drawings provided herewith are Formal Drawings. Therefore these drawings are of better quality than those originally filed. Applicants respectfully request the entry of the replacement drawings.

Respectfully submitted,
HELLER, EHRMAN, WHITE & McAULIFFE LLP

By:


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Attorney Docket No.: 37154-753

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HELLER, EHRMAN, WHITE & McAULIFFE LLP

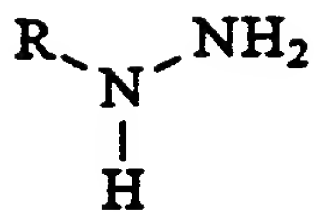
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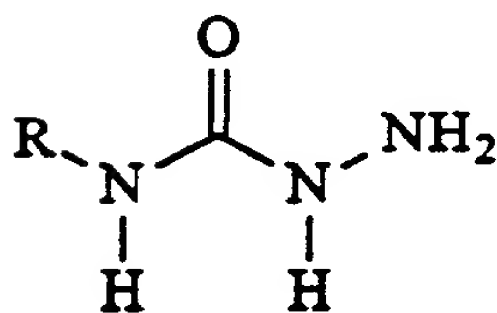
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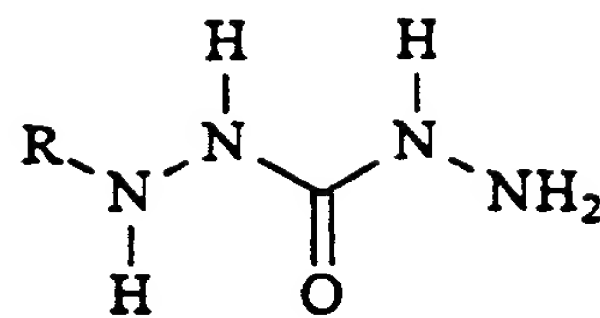
EMAIL: sseidman@hewm.com



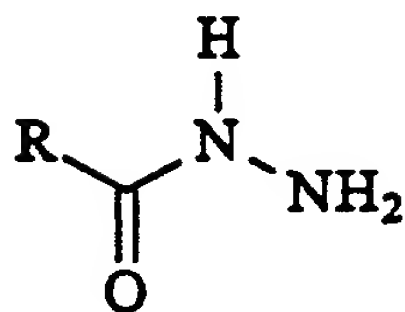
hydrazine



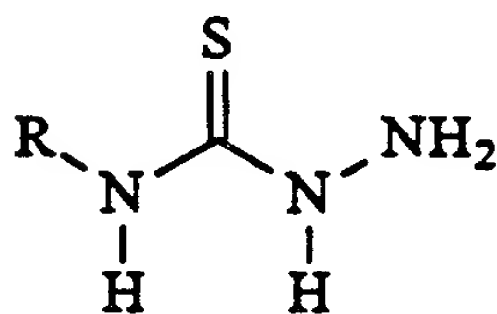
semicarbazide



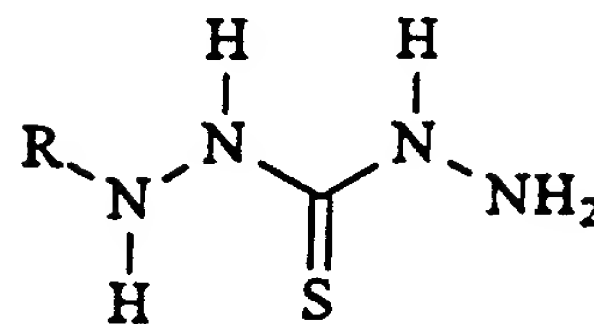
carbazide



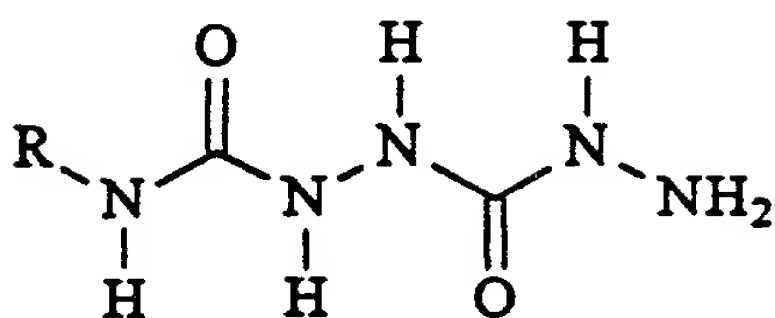
hydrazide



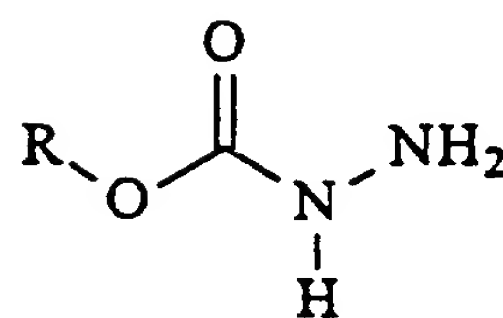
thiosemicarbazide



thiocarbazide



carbonic acid dihydrazine



hydrazine carboxylate

FIG. 1



FIG. 2

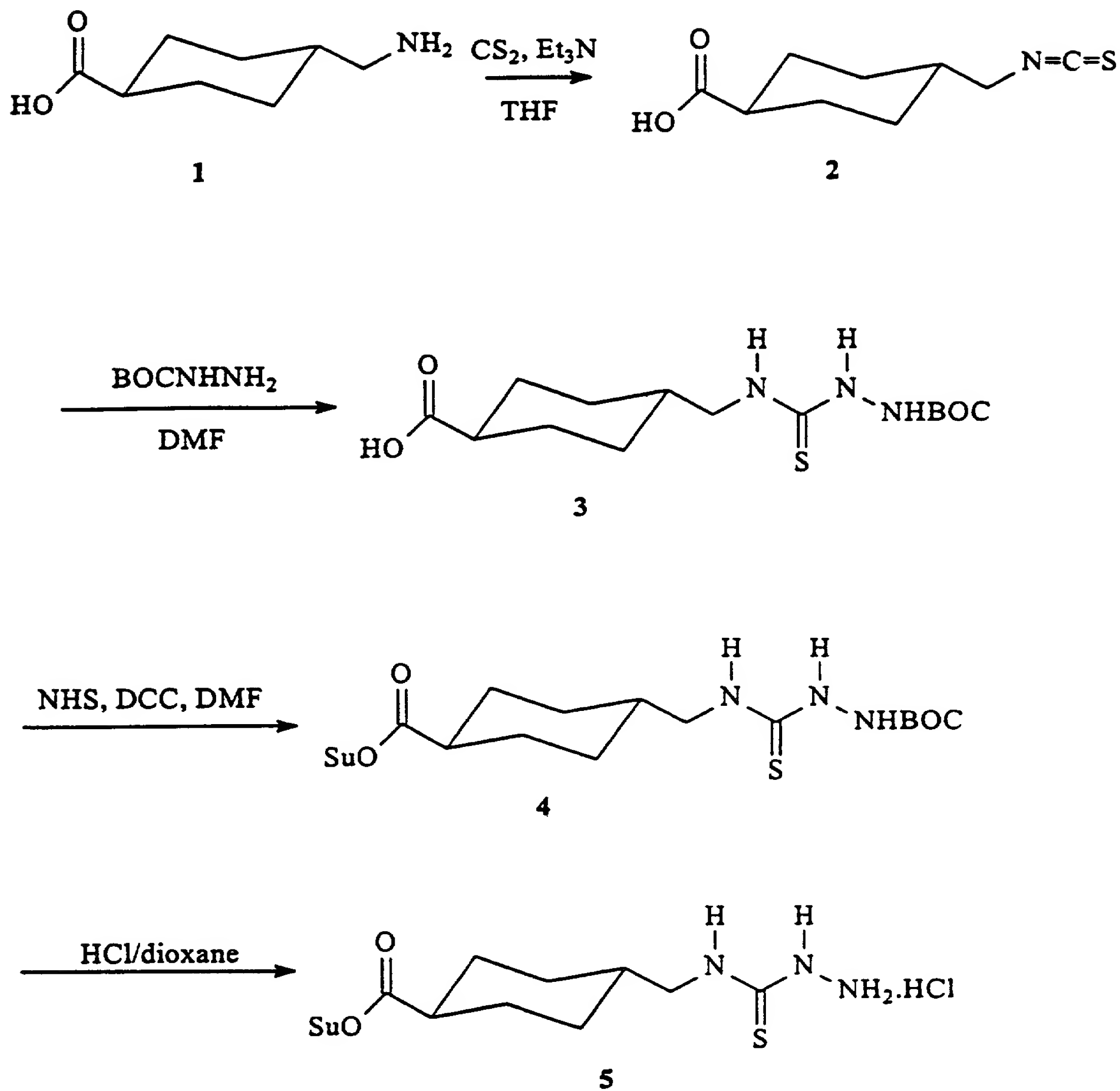


FIG. 3

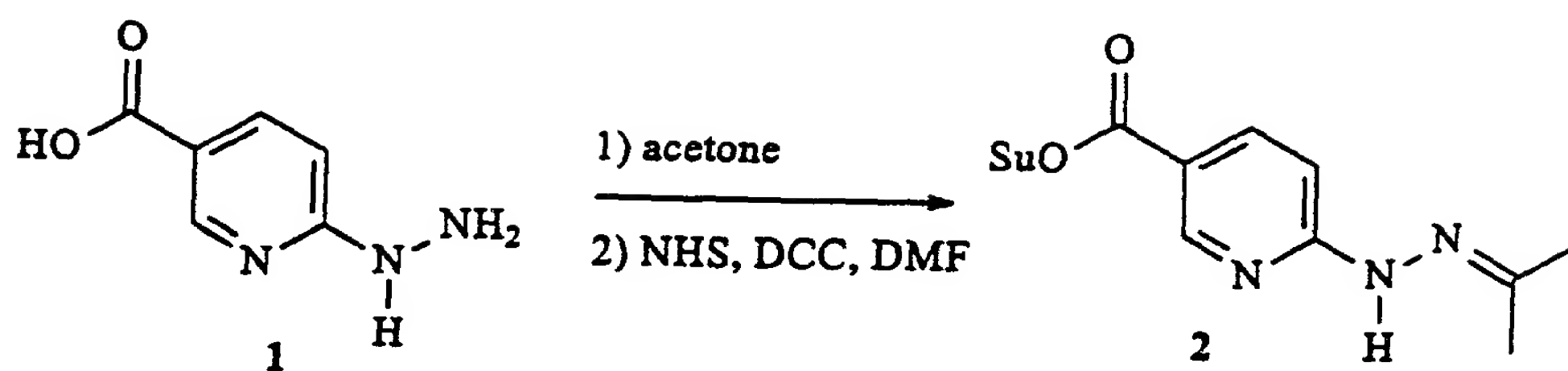
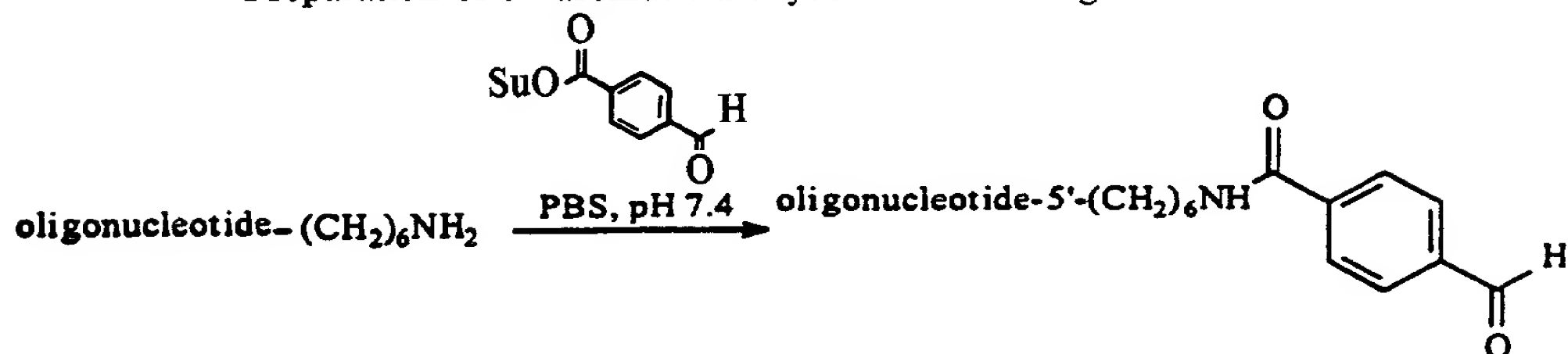
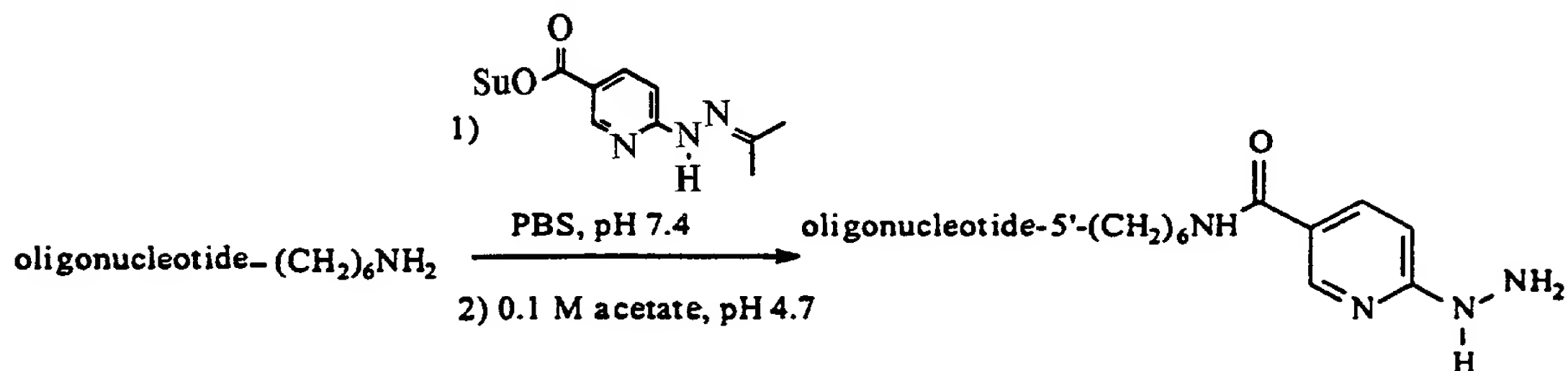


FIG. 4

Preparation of 5'-aromatic aldehyde-modified oligonucleotide:



Preparation of 5'-heteroaromatic hydrazine-modified oligonucleotide:



Conjugation of hydrazino-modified oligonucleotide to aldehyde-modified oligonucleotide

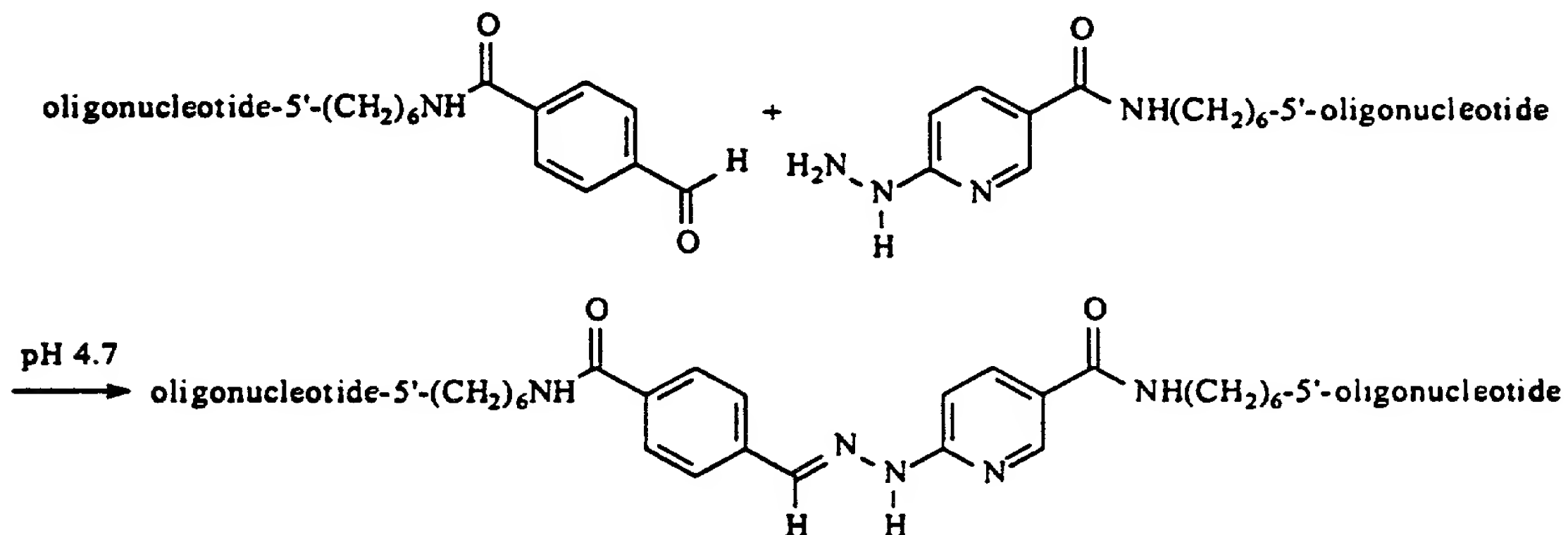
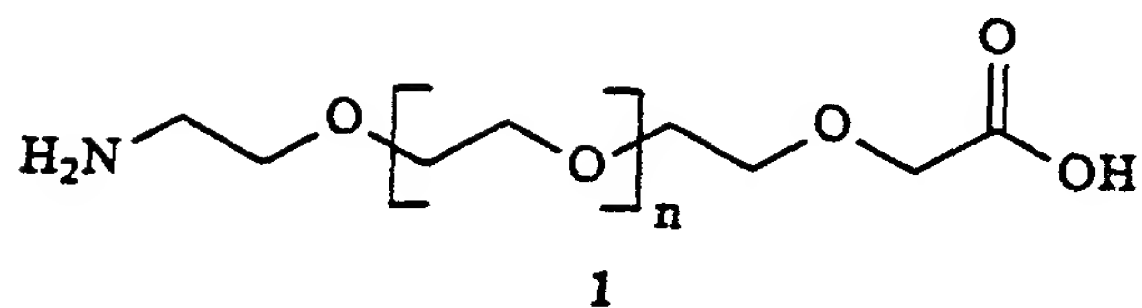
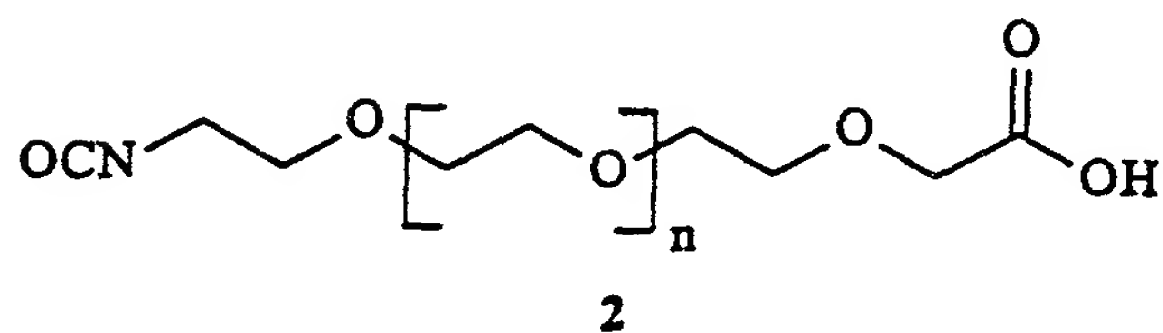


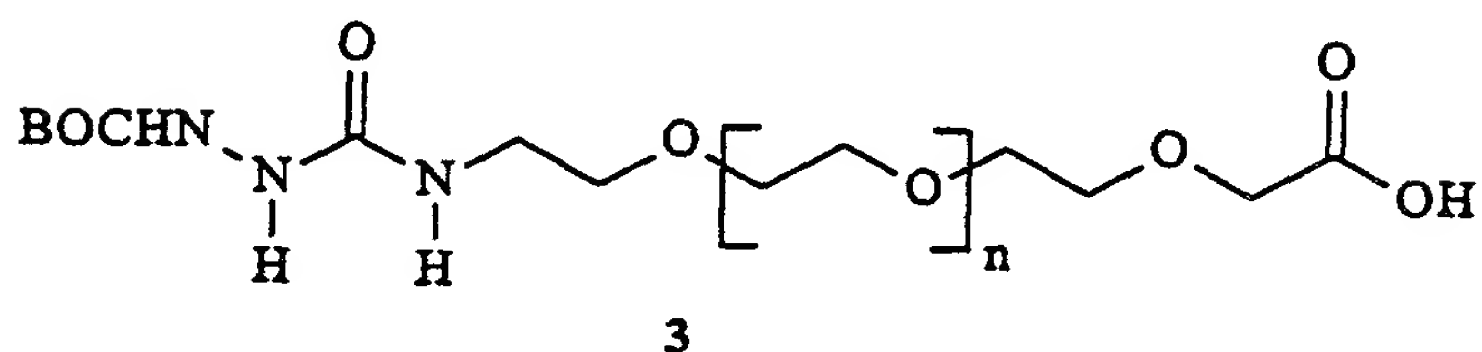
FIG. 5



phosgene, Et₃N, THF

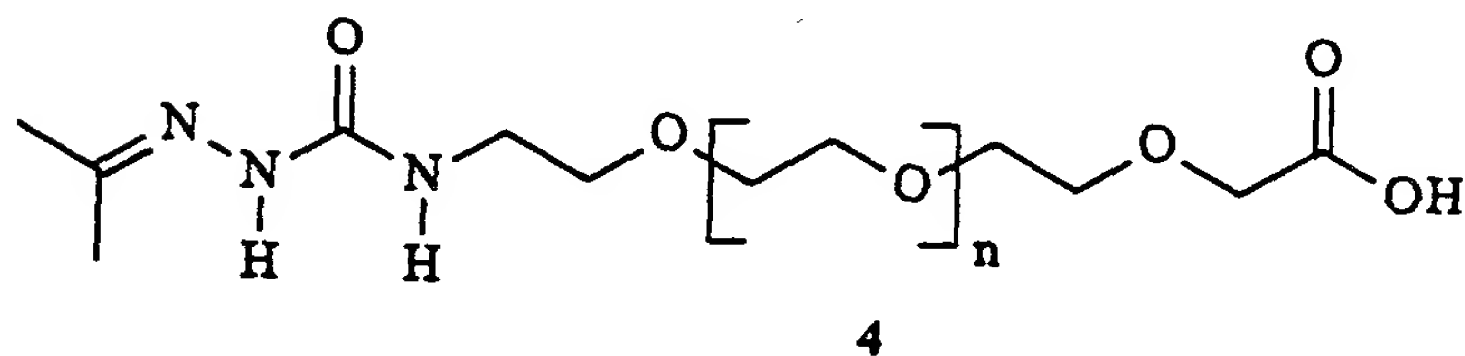


t-butyl carbazate, THF



1) HCl/dioxane

2) acetone, MeOH



NHS, DCC, THF

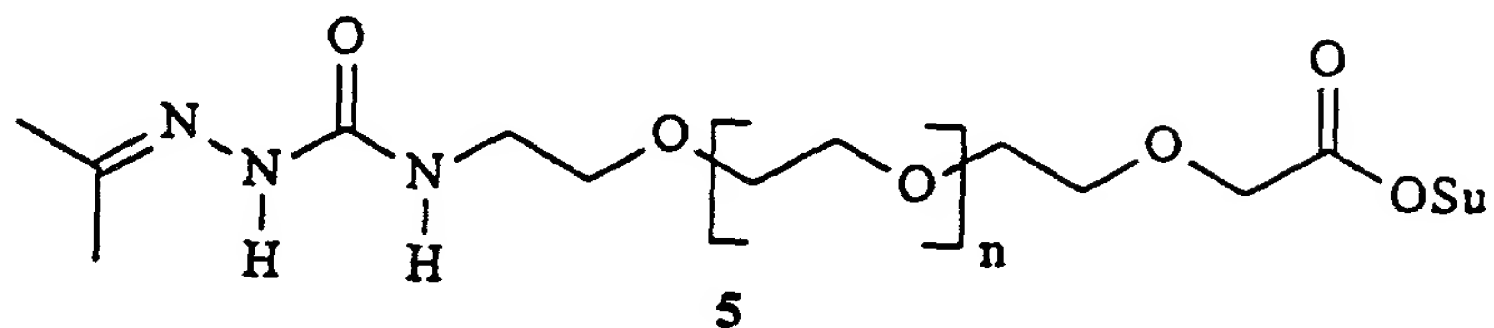


FIG. 6

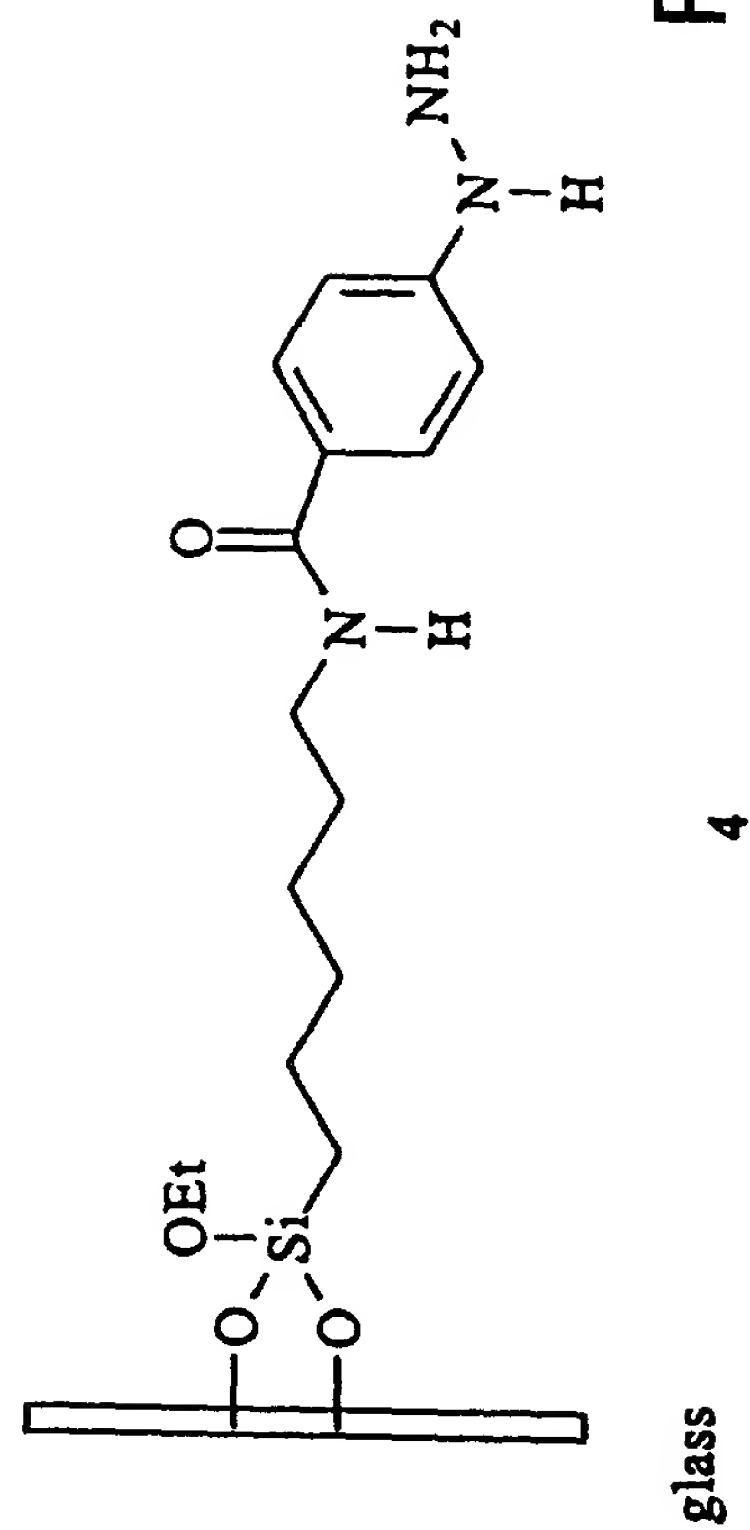
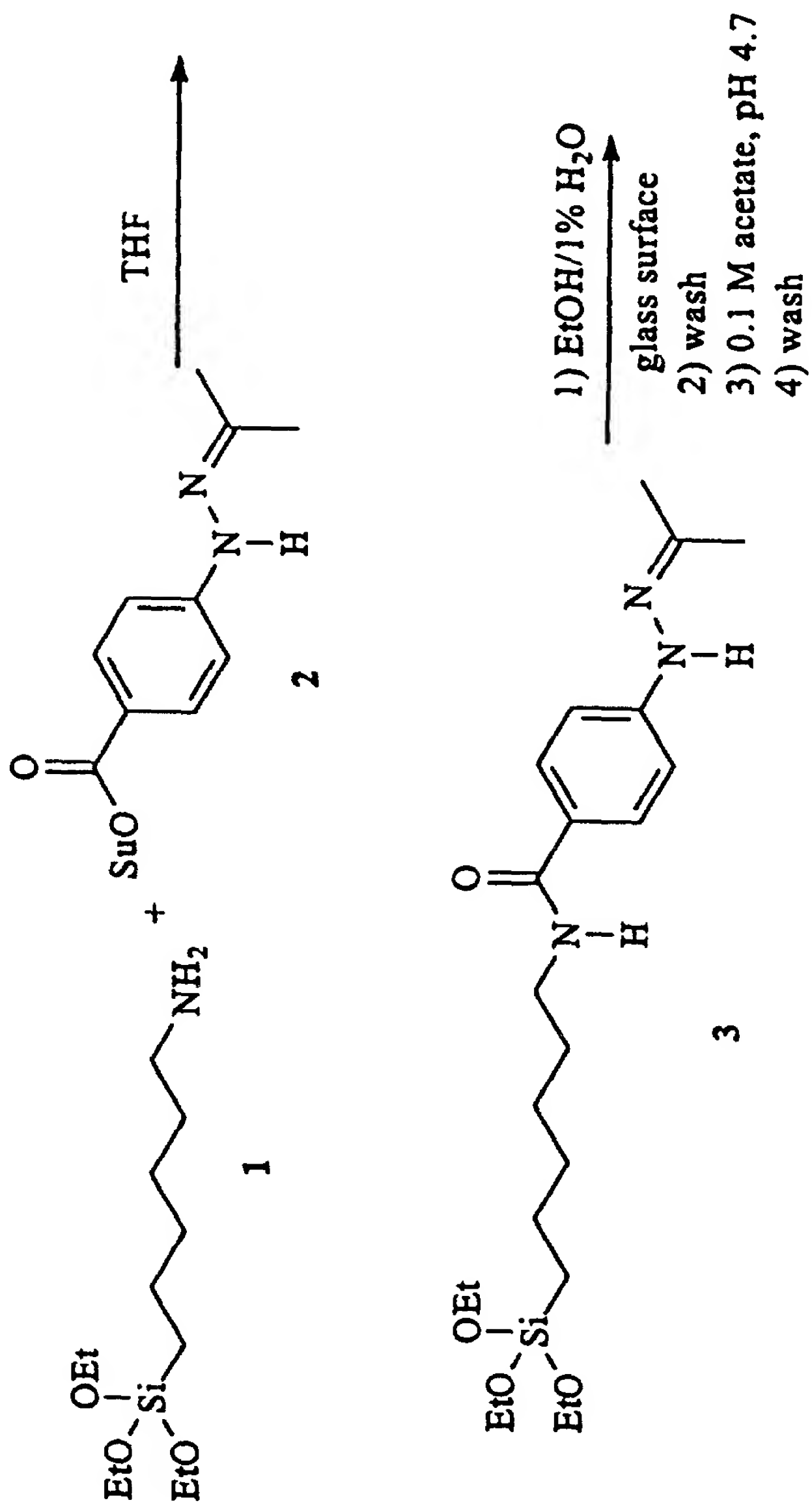


FIG. 7

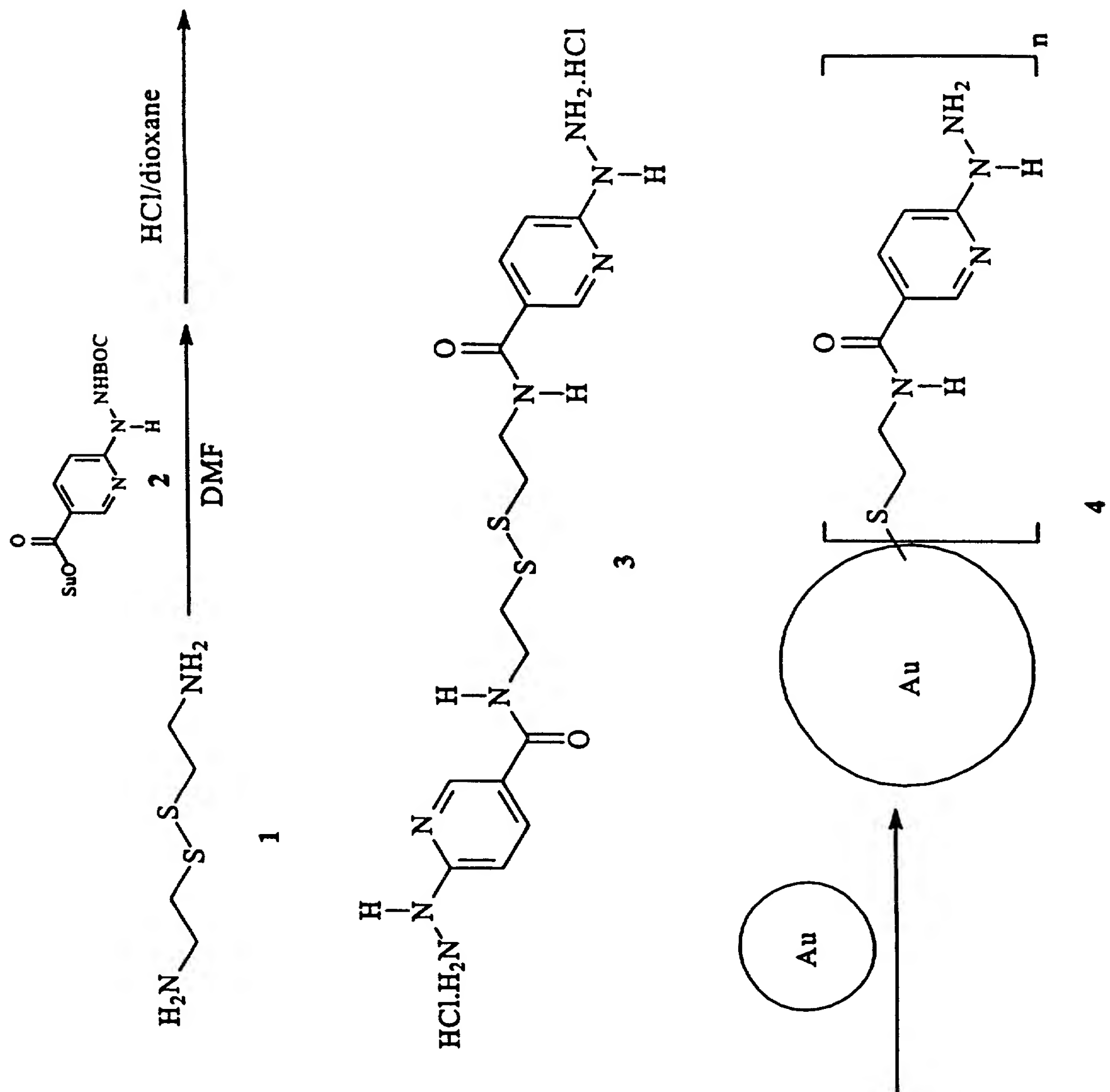
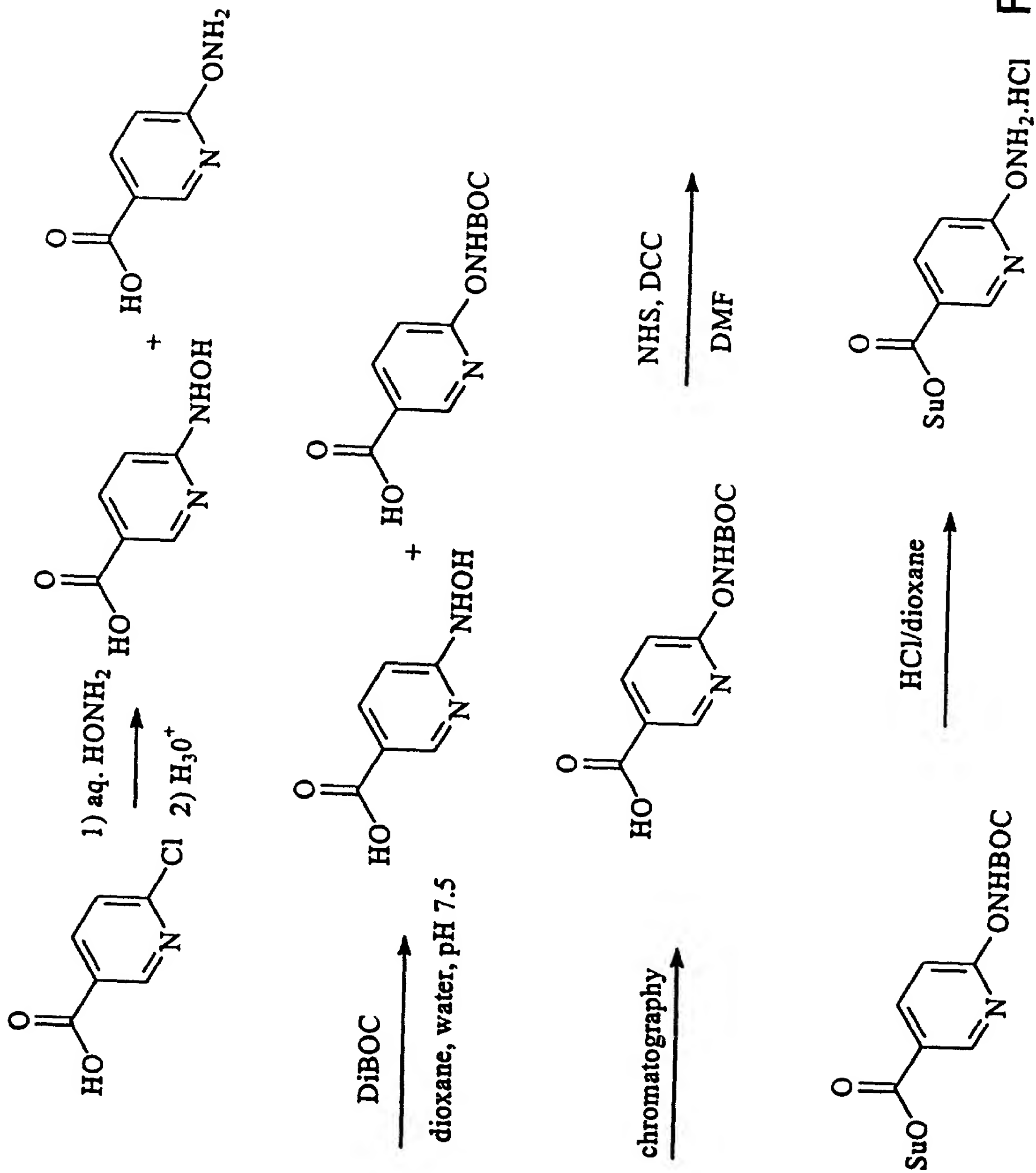


FIG. 8



5/3/01

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Dear Applicant:

The Box PGPub replacement drawings for application number 09/815,978 received on 4/23/01 by the U. S. Patent and Trademark Office will be included for patent publication.

Telephone inquiries should be directed to Customer Service, Office of Initial Patent Examination, at 703-308-1202.



Signature of Reviewer, Office of Initial Patent Examination